SESCO GROUP

Environmental Investigation & Remediation

WORK PLAN

KOKOMO DUMP SITE

1130 South Dixon Road
Kokomo, Indiana 46901
Site Spill Identification Number: C564
Administrative Settlement Agreement and Order on Consent for
Removal Action Docket Number V-W-13•C-018

Prepared For:

Environmental Protection Agency (U.S. EPA), Region 5
Ralph Metcalfe Federal Building
77 West Jackson Blvd
Chicago, IL 60604-3590

Prepared By:

SESCO Group
1426 West 29th Street
Indianapolis, IN 46208
Telephone (317) 347-9590
Facsimile (317) 347-9591

October 25, 2013

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 Background

1.1 Introduction

This Work Plan has been prepared for the Potentially Responsible Party (PRP), the City of Kokomo, Indiana, designated as the "Respondent" in Administrative Settlement Agreement and Order on Consent for Removal Action Docket Number V-W-13•C-018 ("Agreement"). A copy of the Agreement is included in **Appendix A**. The project site (hereafter referred to as "Site"), consists of an approximate 4.5 acre commercial property that is being used as a yard waste composting facility. A topographic map showing the Site location is included as **Figure 1**.

The objective of this project is to address Section VIII of the Agreement, titled Work To Be Performed. The following activities will be performed:

- Develop and implement Site plans including a Site-specific Health and Safety Plan (HASP), a Quality Assurance Project Plan (QAPP), a Site Emergency Contingency Plan, and a Work Plan;
- Establish Site security;
- Determine the extent of buried drums and contamination in soil;
- Develop and implement a plan to control, contain, and/or remove drums and highly contaminated soil;
- Perform sampling and analysis to determine disposal options; and,
- Consolidate and package hazardous substances, pollutants, and contaminants for transportation and off-Site disposal in accordance with the U.S. EPA Off-Site Rule, 40 Code of Federal Regulations (CFR) §300.440.

In conjunction with the work required to be completed per the Agreement, the following tasks will be performed:

- Site boundary survey;
- Phase I Environmental Site Assessment (ESA);
- Removal of brush and yard waste from Site;
- Geophysical survey;
- Surface and subsurface soil sampling (soil borings);
- Test pits based on results of geophysical survey; and
- Development of a Summary Report detailing the work performed.

It should be noted that the work described in this Work Plan will be completed in a phased approach. Due to the nature of the Site, the extent of contamination will be determined in a series of steps and not during one (1) mobilization to the Site. It is expected that Site work will be completed in a span of five (5) to six (6) months following Work Plan approval, dependent upon turn-around times for the U.S. EPA to review required documents. All work will be conducted in a manner consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300.

It should be noted that this Work Plan is intended to be a working document open to multiple iterations based on results of investigations necessary to meet the requirements of the Agreement. Results from investigation activities will be used to develop a Conceptual Site Model (CSM) and data gap analyses will be performed following data collection based on the CSM. After investigation activities have sufficiently defined the extent of buried drums and contamination in soil per the Agreement, Site plans will be modified to reflect the activities that must be completed to bring the Site to closure.

1.2 Site History

According to historic local newspaper articles from the Kokomo Tribune, the Kokomo Dump Site was owned and operated by the City of Kokomo as a former municipal waste open dump in the 1960s, but had been shut down in January 1970, when a landfill opened nearby. It was reported that an estimated 30,000 cubic yards of accumulated garbage were present in early 1970 when the dump ceased operations. The newspaper articles indicated that the dump site was seven (7) acres in size. It is presumed that a portion of the property to the south of the Site was part of the dump site. Further investigation and removal activities may be necessary on the adjacent southern property based on results of investigation activities. The Site has been utilized as a yard waste composting facility since around 1980 and is open seasonally from April through November. Residents of the Kokomo area can bring compostable yard waste to the facility for disposal and the waste is processed through chippers and is turned into mulch and re-usable landscaping products.

The Indiana Department of Environmental Management (IDEM) discovered drums exposed in what was described as a creek bank at the Site in April 2011. IDEM collected samples of the leaking drum contents and conducted x-ray fluorescence (XRF) screening. High concentrations of lead, chromium, arsenic, and mercury were detected, and, as a result, IDEM requested assistance from the U.S. EPA.

A U.S. EPA On-Scene Coordinator (OSC), in conjunction with a Superfund Technical Assessment and Response Team (START), conducted a Site assessment on August 19, 2011. The START contractor was Oneida Total Integrated Enterprises (OTIE) of Chicago, IL. High concentrations of arsenic and lead were confirmed in both surface and subsurface soils. In addition, Polychlorinated Biphenyls (PCBs) above U.S. EPA Regional Screening Levels were confirmed in subsurface soils. As a result of these findings, U.S. EPA determined that conditions at the Site met the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) § 300.415(b)(2) criteria for a time-critical removal action. The U.S. EPA subsequently issued a General Notice of Potential Liability to the City of Kokomo (City) on April 5, 2012, stating that public funds would be used to control and investigate the releases at the Site unless the City elected to take responsibility for this action.

1.3 Site Description

The Site, located at 1130 S. Dixon Road, Kokomo, Indiana, is comprised of approximately 4.5 acres. The Site is bordered by a salvage yard to the north, an abandoned railroad and

Haynes International to the east, three (3) commercial office/warehouse buildings to the south with The Children's Garden Montesorri School located south of the far southeast portion of the Site, and Dixon Road to the west. One (1) small mobile office building is located on the west side of the Site near the entrance from Dixon Road. A concrete pad housing a dumpster and portable toilet is located next to the building. The vast majority of the Site is dedicated to storage of landscape waste and mulch generated on-Site. Site features are depicted on **Figure 2**.

According to U.S. Census data published in 2012, Kokomo has a population of 56,866. The majority of the population of Kokomo is located east and northeast of the subject Site. The area immediately around the Site is commercial/industrial and agricultural use. Residential properties are located south of the Site and include The Children's Garden Montessori pre-school. Surrounding properties are depicted on **Figure 2**.

Wildcat Creek, the main surface drainage feature in the area, is located approximately 225 feet north of the Site. Kitty Creek is located approximately 80 feet west of the Site and is channelized through a culvert running north-south parallel to Dixon Road. The location of the discovered drums is adjacent to a short open discharge area between two (2) storm sewer culverts; storm water outlets from beneath the Haynes International property and then inlets a few feet further to the west and continues via a culvert beneath the Site towards Kitty Creek to the west. A topographic map is included as **Figure 1.** Topography at the Site is relatively flat with a ridge created by a railroad track bounding the Site to the east. The surrounding area ground surface slopes generally to the north and west towards Wildcat Creek.

No wetlands are mapped adjacent to or in the immediate vicinity of the Site, according to the online U.S. Fish and Wildlife Service National Wetlands Inventory Mapper. A copy of the map is included in **Appendix B**. A quarry is located west of Dixon Road and is likely influencing deep groundwater flow in the vicinity. A Bedrock Groundwater Elevation Map is presented in **Appendix C**.

Site-specific geology consists of topsoil or fill at the ground surface overlying silt and clay. Fill has been logged greater than ten (10) feet thick in some locations. Sand was encountered in one (1) location between 18.5 and 20 feet below ground surface (bgs). Groundwater was not encountered during previous investigations and is expected to be greater than 20 feet bgs. Shallow groundwater flow is expected to be towards Wildcat Creek to the north and west, with possible influence from the quarry to the west.

Based on previous soil sampling results, concentrations of arsenic, lead, and PCBs exceeding the U.S. EPA Regional Screening Levels are present. In addition to arsenic and lead, field screening results indicated concentrations of chromium, zinc, and mercury significantly above background levels.

Due to the historic use of an incinerator on the Site and the presence of PCBs in subsurface soil, the U.S. EPA has expressed concern regarding the potential presence of dioxin. Due to

historic use as a landfill, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) may also be encountered.

2.0 Site Mobilization

2.1 Site Safety

A Health and Safety Plan (HASP) meeting the Occupational Safety and Health Administration (OSHA) requirements of 29 CFR 1910.120 is included in **Appendix D**. A SESCO representative will fulfill the role of Response Manager and a representative of Environmental Restoration, LLC (ER) will fulfill the role of Site Health and Safety Officer.

2.2 Pre-Work Meeting

Prior to implementing on-Site investigation activities, a meeting will be scheduled to discuss the approved Work Plan. All pertinent project personnel will be required to attend, including the PRP representative, U.S. EPA OSC, SESCO, ER, and any other necessary subcontractors.

2.3 Site Security

The Site is secured on the north, west, and south by a fence. Access to the Site is provided through a locked gate located along Dixon Road. The east side of the property is accessible through an inactive railroad line; however, the area is heavily wooded making access difficult. No manned security is planned for the Site. During non-working hours, all Site equipment will be staged in a designated equipment staging area. All Site workers, subcontractors, and visitors, will be required to sign in and out each day. The sign-in sheet will record the individuals printed name, signature, affiliation, time on-Site, time off-Site, and comment section. The sign-in sheet will be maintained at the Site entrance. Work areas will be delineated during Site investigation and removal activities dependent upon the nature and expected duration of activities. Excavation or construction-related activities or long-term activities will be delineated with temporary construction/safety fencing to prevent unauthorized access; localized soil borings or short-term/temporary activities will be delineated via safety cones and caution tape. Additionally, it should be noted that the facility is closed to public access during winter months. The HASP contains additional information in **Section 9.0** pertaining to the various work zones on the Site.

2.4 Site Control Measures

Site control measures meeting the requirements of 29 CFR 1910.120 (d) are presented in the HASP in **Appendix D**.

2.5 Office Trailers/Decontamination Trailers

Due to the short duration of this scope of work, a project office with a copy machine, fax machine, and telephone will not be provided. A mobile office building located near the entrance to the facility, which is currently used as an office for Site operations, will be available as a project office and emergency shelter, if needed.

Decontamination stations will be set up in the Contamination Reduction Zone (CRZ) with a trailer available for changing clothes (in the event the work occurs in cold weather). In the event that the scope of work turns into an abatement project that requires a more thorough decontamination, ER will mobilize a decontamination trailer to the Site, which will include the following equipment:

- Shower stalls with three-flap OSHA compliant air lock curtains
- Electric water heater
- Polyethylene holding tank
- Floor drains installed on dirty and clean sides plumbed to holding tank
- Personnel lockers secured to walls in clean room
- Benches
- Clothing hooks/hangers
- Contaminated PPE disposal area
- Clean PPE (unused) storage
- Exterior hand wash units and portable toilets

2.6 Site Preparation

It was apparent to SESCO during the Site visit on December 24, 2012, that a complete Site boundary survey would be needed to establish the legal boundaries of the Site. This task will be conducted at the onset of the project to ensure that investigation and/or removal actions are not encroaching on off-Site properties. Off-Site access has been obtained to the adjacent eastern railroad property. If investigation activities are expected to encroach onto other neighboring properties, access to those neighboring properties will be needed. A professional survey will be conducted by Miller Surveying, Inc. Metal pins will be placed at the corners of the property to identify the Site boundary.

Prior to conducting any additional investigation or sampling activities on-Site, a complete and thorough historical Site research will be conducted. This will allow a better understanding of historic Site operations and determine where source areas are potentially located. The Site research will include a Phase I ESA by Morgan-Clark Associates, LLC in accordance with ASTM E1527-13 and U.S. EPA Standards and Practices for All Appropriate Inquiries rule. Attempts will be made to contact former employees and personnel familiar with the former City dump to better determine the nature of the historic operations.

Prior to performing any subsurface activities, public utilities will be located by notifying Indiana 811 at least 48 working hours prior to any subsurface work. During a Site visit on December 24, 2012, an underground electrical line was noted that extended from a utility pole along Dixon Road to an electrical meter located southwest of the on-Site building. The electrical service line extends from the meter underground to the on-Site mobile office, located on the far west side of the Site. No other visible structures or utility conduits were identified during the visit; however, a private utility locate will be conducted to locate the electrical line from the meter to the on-Site building. Utility locations will be presented on Site maps. Results of the utility locates will be used to analyze potential preferential pathways for contaminant migration. Utility locations will also be analyzed to alter or enhance safety requirements during subsurface activities and may require amendments to proposed work.

Removal of brush and other yard waste along the east side of the Site is necessary to expose the drums and debris that were noted by the IDEM, OTIE, and U.S. EPA personnel. Removal of some of the brush and debris is also necessary to provide proper access to a geophysical survey contractor. It is important to note that some of the brush from the Site is likely situated within the railroad right-of-way, and access to the railroad property has been established. The yard waste and brush that will need to be moved to access the two (2) drum areas will be moved by ER. SESCO will provide a field technician to oversee the brush removal activities.

Following the removal and disposal of the brush, a geophysical survey will be conducted on the entire 4.5 acre Site by Prism GeoImaging of Fishers, IN (Prism). The purpose of the geophysical survey is to identify buried drums, ferrous and non-ferrous metals, and other anomalies using a highly sensitive electronic metal detector. Following the geophysical survey, Prism will submit a summary report, complete with color maps, showing the areas of interest and/or buried items. SESCO will summarize the findings from the Prism report and will submit recommendations for additional investigation work.

All employees engaging in hazardous waste operations or emergency response shall receive appropriate training as required by 29 CFR 1910 and 29 CFR 1926.65. General Site workers engaged in hazardous waste operations will have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations. General Site workers will have completed 8 hours of refresher training (after first initial year after 40 hour training) to maintain qualifications for hazardous waste site field work. On-Site supervisors who will be directly responsible for, or supervise employees engaged in hazardous waste site operations, will have received at least eight (8) hours of additional specialized training on managing such operations.

2.7 Emergency Response Contingency Plan

Emergency plans are presented in **Section 13** of the HASP, included in **Appendix D**. Local emergency response authorities will be contacted prior to mobilization. Emergency

response authorities to be contacted include the Kokomo Fire Department, the Howard County Health Department, and the Department of Homeland Security.

2.8 Project Schedule

A project schedule is included in **Appendix E**.

2.9 Personnel & Equipment Needs

SESCO personnel will provide management and/or oversight of every task to be completed as part of the Work Plan. For more detail of SESCO personnel, refer to **Section 6.1**. For tasks requiring subcontractors, the subcontractors will be responsible for providing appropriate personnel based on the task to be completed. Equipment needs for each task will be determined by SESCO and/or subcontractor personnel based on SOPs and relevant experience in performing similar tasks.

3.0 Sampling Activities

The scope of work for this Work Plan will include the following tasks in chronological order:

- Site boundary survey;
- Phase I ESA;
- Removal of brush and yard waste from specific areas on the Site;
- Removal of drums previously identified;
- Geophysical survey;
- Surface and subsurface soil sampling (soil borings); and,
- Test pits based on results of geophysical survey.

3.1 Project Task Objectives

The objectives of these initial investigation activities are to determine if soil impacts present an imminent and substantial threat to the public health, welfare, and the environment, as well as to characterize soil impacts and develop data to assist in determining further investigation steps, if necessary. In addition, the drums that were previously identified by IDEM and U.S. EPA will be removed from the Site and properly disposed of. A QAPP is included in **Appendix F**. The following sub-sections list the major categories of work that are planned during the initial investigation and drum removal work.

3.1.1 Site Boundary Survey Objectives

The objective of the Site boundary survey is to establish the legal boundaries of the Site. The survey will help to establish if the drums and debris are located on the Site or an off-Site property.

3.1.2 Phase I ESA Objectives

The objective of the Phase I ESA is to determine the past uses of the property and to gain additional information regarding Site operations while the former dump was in operation in the 1960s.

3.1.3 Brush and Yard Waste Removal Objectives

Brush and yard waste will need to be moved around and/or removed in an effort to gain access to the drums of waste that are the subject of the Order, in addition to allow the geophysical survey to be completed, soil borings to be advanced, and surface soil sampling. The drums are located in a remote area along the east and south sides of the Site and are situated in an area of dense foliage. It is anticipated that the yard waste will be moved around the Site and will not be transported off-Site.

3.1.4 Geophysical Survey Objectives

The purpose of the geophysical survey is to identify buried drums, ferrous and non-ferrous metals, and other anomalies using a highly sensitive electronic metal detector. The geophysical survey will allow decisions to be made regarding the placement of soil borings and potential test pit locations, if needed.

3.1.5 Drum Removal Objectives

The objective of removing the drums of waste that were previously identified by the IDEM and U.S. EPA is to remove the source of potential soil impacts from the Site and to be compliant with the Order.

3.1.6 Surface and Subsurface Soil Sampling & Soil Boring Advancement Objectives

The purpose of the surface and subsurface soil sampling and soil boring advancement is to collect soil samples, submit samples for laboratory analysis, and characterize soil impacts from past operations on the Site.

3.1.7 Test Pit Excavation Objectives

Test pits will be conducted only if the geophysical survey indicates that substantial anomalies are present on-Site, which may indicate the locations of additional buried drums or other objects. The purpose of completing test pits will be to confirm the results of the geophysical survey and visually determine the contents of the former dump.

3.2 Project Timeframes

A project schedule provided in **Appendix E** depicts the estimated timeframes for the various scopes of work.

3.3 Sampling Plan

This section will provide a detailed description of each scope of work within this Work Plan, including specific procedures that will be followed for the Site surveying, sampling, investigation work, and excavation activities.

3.3.1 Site Boundary Survey Procedures

The Site boundary survey will be the first step in determining the Site boundaries and will be conducted by Miller Surveying, Inc. of Noblesville, IN.

Records Research

Deed research is done in order to obtain the best description of the Site. This includes deed research of the subject parcel and all abutting parcels. Generally, research for the subject parcel will be done far enough back in time so as to obtain the original description for the parcel(s). Similarly, the abutting parcel's deeds are researched as far back as necessary to ensure that the descriptions are consistent with that of the subject parcel. The records research also entails a review of any title information available from the landowner, as well as a review of other resources which might yield information about the location and description of the parcel. This would include, but not be limited to, a review of records of prior surveys, highway reference material, railroad reference material, records of easements, records of utilities, tax assessor's maps, topographic maps, aerial photographs, local histories, genealogies, and court records.

Field Data

Utilizing the record information obtained above, this segment of a survey begins with a perimeter reconnaissance of the subject and abutting properties. In this phase it is hoped the boundary monumentation called for in the deed descriptions can be recovered. If little or no original monumentation for the subject or abutting properties is found, the scope of field work and consequently, the research portion of the survey, is increased to a point which yields enough information in order to reconstruct the boundaries of the Site.

Boundary evidence, as well as other Site details, is helpful in reconstructing the location of boundary lines that are located from a reference "traverse". The traverse is a control network of reference points, generally wooden stakes or rebar, run very closely to, if not on, the anticipated boundary line utilizing specialized measuring equipment. The equipment used is state of the art Global Positioning Systems (GPS) or theodolite/EDM equipment which yield highly precise measurements.

The base traverse helps to identify other features unique to the Site and will isolate any encroachments if they exist. This aspect of the work provides subsequent reference and working points from which the final monumentation of the parcel is completed using wooden stakes and metal rebar. This entails the setting of any lot

corners found to be missing, and can, in wooded areas (such as the Site), involve blazing and painting of boundary lines.

Office Computation & Boundary Decisions

The data gathered in the field is input into the computer and rigorous computations are performed in order to ensure that the accuracy of the traverse meets acceptable standards. The accuracy of the boundary evidence is then checked and this work is "reduced" to a plan format (worksheet).

Using the worksheet and the reference information gathered during the records search, the surveyor makes a determination as to the proper location of the boundary line according to the pertinent laws and rules which govern parcel reconstruction. It can quite often be the case that further reconnaissance and records research may be necessary to explain why boundary evidence and evidence of current occupation aren't consistent with record descriptions for the parcel.

Once a determination has been made, the bearings and distances between the property corners are computed and added to the worksheet. Finally, information gathered during the records search is applied to the Site, details are located, and appropriate notes are written concerning the status of rights-of-way, easements, and encroachments and how they might affect the surveyed premises.

Final Plan

The worksheet plan which is generated, is a working drawing upon which a surveyor makes notes concerning his efforts in trying to reconcile the field evidence with the record descriptions for the Site. From this worksheet, a final draft of the plan is made.

Once the final plan has been rendered, it's quality is checked by another surveyor in the office, for transposition/scrivener's errors which might have occurred during the transfer of information from the worksheet to the final plan. Additionally, the bearings and distances depicted on the plan for the boundary lines are checked, mathematically, to ensure accuracy. This plan information is often used in preparing future deed descriptions of the property.

3.3.2 Phase I ESA Procedures

The Phase I ESA will be conducted by Morgan-Clark Associates, LLC in accordance with ASTM E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. As part of the Phase I ESA, a Site reconnaissance will be conducted, in addition to historical research on the property.

3.3.3 Brush and Yard Waste Removal Procedures

Brush and yard waste will be removed from the area of the discarded drum identified as KD-Drum-2 on **Figure 2** and the locations of the proposed soil borings and surface soil samples shown on **Figure 3**.

Prior to brush removal, the locations of the proposed sampling locations that are accessible will be staked out utilizing 3-foot long wooden stakes that will be driven into the ground approximately six (6) inches with a hammer. ER will mobilize a small to medium-sized trackhoe such as a CAT 318 or similar to the Site. The trackhoe will be moved to the areas that need to be cleared of brush. The operator will extend the boom of the excavator and operate the controls so that the bucket can remove the desired brush and create a pathway to the abandoned drum and the proposed sampling locations. The brush will be discarded in a nearby pile. The large piles of yard waste that currently exist on the Site will also be moved temporarily to allow the staking of the proposed sampling locations and to allow the geophysical survey to be conducted (see **Section 3.3.4** below).

3.3.4 Geophysical Survey Procedures

The purpose of the geophysical survey is to identify buried drums, ferrous and non-ferrous metals, and other anomalies using a highly sensitive electronic metal detector. The geophysical survey for the Site is not intended to identify or delineate a contaminant plume. The geophysical survey will allow decisions to be made regarding the placement of soil borings and potential test pit locations, if needed.

The geophysical survey will utilize an EM61 Mark II with a high-power modification (EM61-MK2-HP) electromagnetic metal detector manufactured by Geonics Limited. The high-power modification is an optional manufacturer's upgrade that provides an eight-fold increase in the amount of signal received by the instrument, resulting in significant improvements to the signal-to-noise ratio (SNR). Compared to the standard EM61-MK2 (or the older EM61), the HP modification increases the depth of detection by 45%-80% depending on target characteristics. Mapping with the EM61-MK2-HP is a cost effective and highly sensitive method for screening large areas for the presence of buried metallic objects, which is the main target of the geophysical survey.

The EM61-MK2-HP transmits and receives a transient electromagnetic pulse with system logic optimally tuned to observe the characteristic signal associated with buried metallic objects. Target depth is assumed to be within the excavation depth of typical trackhoe excavators, and above the water table (so that the excavation doesn't have to be continually dewatered). The exploration depth of the EM61-MK2-HP is in excess of 18 feet, which is beyond the maximum digging depths of typical excavators and according to previous soil boring data, the water table is more than 20 feet bgs. Data will be collected using a sub-meter accuracy GPS receiver. All data and anomaly locations will be geo-referenced with UTM coordinates. Grid spacing will be nominally one (1) meter, but actual grid dimensions will vary with field conditions and accessible area. This is a relatively tight grid spacing that offers a very good resolution characterization of potential targets. Data maps will be overlaid on aerial photo basemaps to provide easy reference to Site features.

Using receiver coils at two (2) different heights, the system can be used to estimate the size and proximity of metallic objects by the respective signal strengths recorded in millivolts. EM61-MK2-HP data will be collected in a near continuous fashion along parallel lines in all areas of the Site that are accessible with the geophysical equipment. The data will then be downloaded from the instrument to a laptop computer for processing with *DAT61W*, authored by Geonics Ltd. and *Surfer,* authored by Golden Software. The data will be portrayed as color-filled contour maps, which will depict areas of concern such as buried structures and metallic objects. Data maps will be overlaid on aerial photo basemaps to provide easy reference to Site features. The location of surface objects will be noted, recorded with photographs, and identified on the maps in the final report.

It's important to note that geophysical methods are unable to determine the physical condition of potential targets with any reasonable reliability. Ground Penetrating Radar (GPR) under controlled conditions could determine a crushed or badly deteriorated drum from a sound drum, but under typical field conditions with uncontrolled burials this becomes difficult to impossible. EM31 conductivity mapping could potentially detect a plume of leaking material from a drum, if the plume causes a detectable contrast in subsurface materials (which would depend on a number of factors). Geophysical methods can't determine target contents unless they happen to be radioactive. Additionally, geophysical methods can't determine the age of burial. Under controlled conditions, GPR can potentially detect a fresh burial from a historical burial, but again this becomes difficult to impossible under typical field conditions with uncontrolled burials such as the Site. An estimate can be made of how many drums a given metallic anomaly might contain by calculating the area of the anomaly.

3.3.5 Abandoned Drum Removal Procedures

The drum removal procedures will be conducted by ER, with oversight provided by SESCO. The goal of this task is to remove the drum located on the far south side of the Site or on the off-Site property, identified on **Figure 2** as KD-Drum-2. This drum is easily accessible after the brush is cleared. The contents of this drum were previously sampled on August 19, 2011, and was submitted for laboratory analysis. The laboratory analysis indicated that the contents of the drum contained elevated levels of arsenic, cadmium and chromium. The Toxicity Characteristic Leaching Procedure (TCLP) metals analysis indicated that the waste was not considered a hazardous waste. The results of the drum sampling are summarized in **Tables 1 & 2**.

The drum identified as KD-Drum-1 on **Figure 2** (and one additional drum that was noted during a Site visit) are located toward the bottom of a drainage swale, approximately ten (10) feet below the surrounding ground surface. Removal of the drums is complicated by the fact that the drums are situated in an area with approximately ten (10) feet of overburden that would need to be removed prior to drum removal. Removal of this overburden material could potentially expose other

drums or waste. Discussion with the U.S. EPA OSC indicated that these drums could be removed during a future scope of work, once the geophysical survey and soil sampling activities are completed.

The drums that were previously identified were in varying states of deterioration. Drum KD-Drum-1, contained a solid, red material, which appeared to possibly be paint. Drum KD-Drum-2 contained a solidified mass of metallic material. ER will utilize a trackhoe to mobilize to the location of KD-Drum-2 and will pick up the drum and place it into an 85-gallon polyethylene overpack drum. Following the drum removal, the soil immediately beneath the drum will be excavated to a depth of approximately one (1) foot bgs, and the soil will be placed into a UN A1A 55-gallon steel drum. The drums will be moved with the trackhoe to a designated drum staging area (**Figure 2**), properly labeled and assigned a unique identification number. Following the shallow soil removal, the soil beneath the drum will be sampled as described in **Section 3.3.6**.

During the Site reconnaissance by SESCO on December 24, 2012, the two (2) drums of investigation-derived waste (IDW), which were generated by OTIE during the August 19, 2011, investigation, were still situated on the southwest portion of the Site. The drums contained a label with the OTIE logo on them. A review of the OTIE *Site Assessment Report* indicated that one (1) drum of soil waste and one (1) drum of water waste was generated during the investigation work. Samples were collected from both drums of IDW and were submitted for laboratory analysis. The water sample was submitted for analysis of VOCs, SVOCs, total metals and total PCBs. The soil sample was submitted for analysis of TCLP metals and total PCBs. The analytical results indicated that the IDW was non-hazardous.

3.3.6 Surface and Subsurface Soil Sampling (Soil Borings) Procedures

In compliance with the request of the U.S. EPA, SESCO proposes to sample surface soil to assist in the determination of contamination in soil that currently could pose a direct contact exposure risk. As shown on **Figure 3**, a total of 26 surface soil samples are proposed and have been established using a grid spacing of approximately 90 feet between sampling locations. This grid system was established to allow sufficient coverage of the Site in an effort to determine if surface soils are impacted from historic use of the Site. In addition, 16 soil borings are proposed throughout the Site in an effort to characterize soil impacts discovered during the investigation completed by the START contractor on August 19, 2011. Laboratory analytical results of surface soil, subsurface soil, drum contacts and investigation-derived waste (IDW) generated from the August 19, 2011, investigation are summarized in **Tables 1-7**. The procedures for the surface and subsurface sampling are summarized below.

Surface Sampling

The 26 surface soil samples will be collected utilizing a hand auger, since the soil samples will be collected between the ground surface and six (6) inches bgs. The soil

samples will be collected in accordance with SESCO SOP #WP-01, Surface & Shallow Sub-Surface Sampling SOP, which is included in **Appendix G**.

Soil samples will be placed into laboratory-supplied sample containers. The sample containers will be properly labeled and will be packed in an iced cooler, maintained at a maximum of 4°C, and submitted, with appropriate chain-of-custody documentation, to Pace Analytical Services, Inc. in Indianapolis, Indiana. The samples will be submitted for analysis of volatile organic compounds (VOCs) using U.S. EPA method 8260, Resource Conservation & Recovery Act (RCRA) 8 metals using U.S. EPA Methods 6010 and 7470, TCLP metals using U.S. EPA Methods 6010 and 7470, PCBs using U.S. EPA Method 8082, and 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) using U.S. EPA Method 8290. Samples will be delivered to the laboratory by SESCO personnel following proper chain-of-custody procedures in accordance with SESCO SOP #WP-02, which is included in **Appendix H**.

The proposed laboratory analyses for each sample is summarized in **Table 8**. Samples will be delivered to the laboratory by SESCO personnel. Custody seals will be placed on the coolers in accordance with SESCO SOP #WP-03, which is included in **Appendix I.**

Decontamination of field sampling equipment will be accomplished in the following steps:

1. Gross contamination will be removed utilizing a brush and an Alconox®/Water solution
2. Rinse with distilled water
3. Rinse with isopropyl alcohol
4. Rinse with deionized water
5. Wrap equipment in foil if not being used immediately

Decontamination will occur on plastic sheeting and all fluids will be containerized, sampled for laboratory analysis for waste profiling, and properly disposed. Further information regarding sampling equipment to be utilized, sample screening, sampling procedures, QA/QC samples to be collected, sample bottles, and chain-of-custody procedures are provided in the QAPP in **Appendix F**.

Subsurface Sampling (Soil Borings)

The 16 proposed soil borings will be advanced in the locations shown on **Figure 3**. Some soil borings will be advanced adjacent to previous borings where no soil samples were submitted for laboratory analysis. Select soil borings will be "stepped out" in each direction from previous borings in an attempt to characterize soil impacts. The actual locations of the proposed borings will be adjusted due to topographic variations across the Site or other encumbrances.

The depth to bedrock is estimated to be at 25-35 feet bgs. The soil borings will be advanced by Midway Services, Inc. Soil borings will be advanced utilizing a Geoprobe® 6620 DT direct-push sampling rig or equivalent to depths of approximately 30 feet bgs. The soil samples will be collected in accordance with SESCO SOP #WP-04, Subsurface Soil Sampling SOP, which is included in **Appendix J**.

Soil samples will be placed into laboratory-supplied sample containers. The samples will be packed in an iced cooler, maintained at a maximum of 4°C, and submitted, with appropriate chain-of-custody documentation, to Pace for analysis of the constituents identified in **Table 9**. The analysis is based on previous sampling data and results. Samples will be delivered to the laboratory by SESCO personnel following proper chain-of-custody procedures in accordance with the SESCO SOP #WP-02, which is included in **Appendix H**. Custody seals will be placed on the coolers in accordance with SESCO SOP #WP-03, which is included in **Appendix I.**

Following the advancement of the soil borings, SESCO will attempt to collect a groundwater sample from each soil boring where groundwater is encountered, if field screening of soil samples indicates potential VOC impacts. The purpose of collecting groundwater samples will be to screen the Site for potential vapor intrusion pathways and to determine if additional sampling is warranted. If the decision is made to sample groundwater, SESCO will instruct the drilling contractor to install a one (1)-inch diameter polyvinyl chloride (PVC) screen and riser pipe in the completed boreholes in an effort to collect groundwater samples. If the boreholes cave in, then a four (4) foot length, stainless steel screenpoint sampler will be pushed into the subsurface with the Geoprobe® until the saturated unit is reached. The probe rods will be retracted to deploy the expendable point on the sampler, thus exposing the four (4) foot long screen. Groundwater samples will be collected using either a mini bailer or a stainless steel check valve and 0.25-inch diameter polyethylene tubing. All reusable equipment will be properly decontaminated prior to and following use. The collected groundwater samples would be submitted for VOC analysis via U.S. EPA Method 8260.

3.3.7 Test Pit Excavation Procedures

Test pits will be conducted only if the geophysical survey indicates that substantial anomalies are present on-Site, which may indicate the locations of additional buried drums or other objects. Prior to excavation work, a public and private utility locate should be conducted to locate and mark any underground utilities in the vicinity.

A test pit or trench will consist of an excavation dug through soil and/or buried material to visually determine the subsurface material. Test pits may be square or rectangular in shape and any size. Trenches are normally excavated with benches not exceeding four (4) feet in height to give an overall slope of 1.4 horizontal to 1.0 vertical ratio. The trench may extend for any length needed to explore Site conditions. Larger and deeper excavations may be required for project specific

objectives, or where field conditions warrant. Important: Personnel will not enter a test pit/trench until authorized by the Site Safety Officer. Substantial local, state, and federal regulations and Site-specific health and safety requirements apply for entry into excavations over four (4) feet deep. Test pits would be completed in accordance with SESCO SOP #WP-05, Test Pit Excavation, which is included in **Appendix K**.

3.4 Sample Shipping

Samples for laboratory analyses will be transported to Pace in Indianapolis, Indiana, by field personnel following chain-of-custody procedures directly from the project Site or by laboratory-provided courier from SESCO's office. All samples deemed hazardous will be shipped in compliance with 49 CFR, Parts 171-179 or IATA Dangerous Goods Regulations. It should be noted that samples for laboratory analyses are not expected to be considered "dangerous goods" unless indicated by field screening, laboratory analysis, or deemed dangerous goods by the OSC. Additionally, shipment of samples by air shall be limited to samples for dioxin analysis via unpreserved bottles; shipping of these containers will be the responsibility of Pace from their Indianapolis, Indiana laboratory to their laboratory in Minneapolis, Minnesota.

Environmental samples will be packed prior to shipment by air using the following procedures per the U.S. EPA Operating Procedure document titled *Packing, Marking, Labeling and Shipping of Environmental Waste Samples* (Document #SESDPROC-209-R2):

1. Allow sufficient headspace (ullage) in all bottles (except VOA containers with a septum seal) to compensate for any pressure and temperature changes (approximately 10 percent of the volume of the container).
2. Ensure that the lids on all bottles are tight (will not leak).
3. Place bottles in separate and appropriately sized polyethylene bags and seal the bags. If available, the use of Whirl-Pak bags is preferable, if unavailable seal regular bags with tape (plastic electrical tape).
4. Select a sturdy cooler in good repair. Secure and tape the drain plug with fiber or duct tape inside and outside. Line the cooler with a large heavy duty plastic bag.
5. Place cushioning/absorbent material in the bottom of the cooler and then place the containers in the cooler with sufficient space to allow for the addition of cushioning between the containers.
6. Put "blue ice" (or ice that has been "double bagged" in heavy duty polyethylene bags and properly sealed) on top of and/or between the containers. Fill all remaining space between the containers with absorbent material.
7. Securely fasten the top of the large garbage bag with tape (preferably plastic electrical tape).
8. Place the Chain-of-Custody Record or the CLP Traffic Report Form (if applicable) into a plastic bag, and tape the bag to the inner side of the cooler lid.

9. Close the cooler and securely tape (preferably with fiber tape) the top of the cooler shut. Chain-of-custody seals should be affixed to the top and sides of the cooler within the securing tape so that the cooler cannot be opened without breaking the seal.

3.5 Analysis

Laboratory analysis of samples will be conducted as set forth in **Sections 3.3.5** and **3.3.6** and in **Tables 8 & 9**.

4.0 Removal Activities

During this initial phase of investigation, and in compliance with the request of the U.S. EPA, SESCO will remove one (1) of the two (2) drums that were previously identified by the IDEM in April 2011 in accordance with the procedures in **Section 3.3.5**. The drum to be removed is KD-Drum-2, which is located in the southeast corner of the Site near The Children's Garden Montessori School as shown on **Figure 2**. The removal of KD-Drum-1, another drum situated adjacent to it, and any other drums that are identified during the geophysical survey, will occur at a later date following the submittal of an updated Work Plan to the U.S. EPA for review and approval.

4.1 Cleanup Criteria

It is hereby proposed to utilize IDEM *Remediation Closure Guide (RCG) March 22, 2012 (With Corrections Through March 1, 2013)* Screening Levels when evaluating data for delineation of contamination and initial soil removal activities. IDEM RCG Industrial Direct Contact Screening Levels (IDCSLs) may be utilized as cleanup objectives dependent upon investigation results; however, Site-specific risk-based cleanup objectives may be established at a later date, dependent upon risk assessment results. In addition, the IDEM Federal Programs Section issued Applicable or Relevant and Appropriate Requirements (ARARs) in a letter dated October 17, 2013, which is included in **Appendix L**. The ARARs must be adhered to during investigation and removal activities.

4.1.1 Soil Removal

Soil to be removed beneath KD-Drum-2 will be sampled for waste characterization according to the requirements of the disposal facilities (to be determined). The remaining soil left in place following the limited soil removal will be sampled and submitted to Pace for analysis of RCRA 8 metals using U.S. EPA Methods 6010 and 7470, SVOCs using U.S. EPA Method 8270, and PCBs using U.S. EPA Method 8082. The analytical data will be compared to the IDEM RCG IDCSLs.

4.1.2 Surface Sampling

Surface sample analytical data will be compared to IDCSLs for all on-Site samples collected. Off-Site delineation samples, if necessary, will be compared to either IDCSLs or the IDEM RCG Residential Direct Contact Screening Levels (RDCSLs), dependent upon current and long-term expected land use.

4.1.3 Subsurface Soil Sampling

Subsurface soil analytical results will be compared to IDCSLs.

4.1.4 Test Pits

Soil samples are not anticipated to be collected during exploratory test pit excavation activities. Performance of test pits will be dependent upon results of the geophysical survey detailed in **Section 3.3.4**, and will be used to develop further investigation and removal plans.

4.2 Site Cleanup Activities

4.2.1 Utility Clearance

Utility clearance procedures are discussed in **Section 2.6**.

4.2.2 Abandoned Drum Removal

Abandoned drum removal procedures are discussed in **Section 3.3.5**.

4.2.3 Spill Contingencies

In the event of a spill, the release will be contained and cleaned up as soon as possible. Site personnel will control the spill by stopping or securing the spill source. This could be as simple as up-righting a container, placing a drip pan under a leak, or using floor-dry or absorbent pads to soak up spilled material. Spill clean-up debris/media will be transferred to drums and labeled for proper storage and disposal.

Spill response equipment will be staged near the dual contained fuel storage tank, on at least one (1) Site pick-up truck, and at the Site staging area. A sign will be placed at each location identifying the location of spill response equipment.

4.2.4 Soil Removal

Soil removal beneath abandoned drum KD-Drum-2 is discussed in **Section 3.3.5**.

4.2.5 Air Monitoring

According to 29 CFR 1910.120 (h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection needed on-Site. ER shall be tasked for all air monitoring on this project and will maintain an air monitoring program to evaluate concentrations of specific chemical groups or contaminants in ambient air during work activities. This program will include both real-time, direct monitoring equipment, and chemical-specific personal air monitoring as appropriate.

Both area and personal monitoring will be conducted to document potential exposures to hazardous constituents, as well as to evaluate the adequacy of the PPE program.

All air monitoring data will be documented and available in the mobile office building located on the west side of the Site for review by all interested persons. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications. Calibration and maintenance performed will be entered in the Site log and/or instrument log book.

4.2.6 Dust Control

Control measures will be implemented to suppress airborne dust contamination both at the staging area and at the remediation areas. If conditions warrant, a water truck will be utilized to water areas during excavation to reduce dust emissions in the excavation areas. Loose soils around construction entrances will be swept and picked up to prevent additional dust and spread of contamination.

4.2.7 Decontamination

Equipment decontamination procedures are presented in **Sections 3.3.6** and **5.0**.

4.2.8 Surface and Subsurface Sampling

Surface and subsurface sampling procedures are presented in **Section 3.3.6**.

4.2.9 Test Pit Excavations

Test pit excavation procedures are presented in **Section 3.3.7**.

4.3 Waste Disposal

Waste disposal facilities are proposed in the table below. Waste classification sampling procedures are presented in SESCO SOP #QP-01, located in **Table 8** of the QAPP.

Waste Stream	Hazard Classification	Proposed Disposal Facility
Soil	Non-Hazardous	Waste Management, Inc. Twin Bridges RDF 124 Twin Bridges Road Danville, IN 46122
Soil	Hazardous	Environmental Quality Company Wayne Disposal, Inc. 49350 N. I-94 Service Drive Belleville, MI 48111 EPA ID: MID048090633
Water	Non-Hazardous	Waste Management, Inc. Twin Bridges RDF 124 Twin Bridges Road Danville, IN 46122

Waste Stream	Hazard Classification	Proposed Disposal Facility
Water	Hazardous	Environmental Quality Company Wayne Disposal, Inc. 49350 N. I-94 Service Drive Belleville, MI 48111 EPA ID: MID048090633
Solid Waste	Non-Hazardous	Waste Management, Inc. Twin Bridges RDF 124 Twin Bridges Road Danville, IN 46122
Solid Waste	Hazardous	Environmental Quality Company Wayne Disposal, Inc. 49350 N. I-94 Service Drive Belleville, MI 48111 EPA ID: MID048090633

If the above proposed disposal facilities are not acceptable to the OSC, alternative locations should be proposed by the OSC and the Work Plan will be amended to accommodate. The proposed hazardous waste disposal facility is in compliance with applicable laws and regulations, including RCRA Section 3004 and 3005, as amended.

Following waste characterization and disposal facility approval, wastes will be removed from the Site and delivered to the approved disposal facilities by American Industrial Services, LLC (AIS) in accordance with all applicable state and federal regulations, including 49 CFR, parts 170-179.

4.4 Schedule

A project schedule is included in **Appendix E**.

5.0 Site Restoration/Project Close-Out Activities

Although project close-out activities will not be performed during this phase of the project, in general, the procedures below will be followed. A more detailed discussion will be provided in a subsequent Work Plan once sufficient data has been collected to establish appropriate removal activities.

After completion of remediation activities all temporary construction/safety fencing will be removed. All excavated areas will be backfilled, all disturbed areas will be graded and topsoil added if necessary and reseeded with a native seed mixture.

Following restoration activities, Site demobilization will begin. A decontamination pad will be constructed by building berms surrounding the pad and placing a plastic liner material within and over the berms. All equipment will be cleaned and removed from the Site. Cleaning will consist of high pressure water washing without the use of surfactants or degreasers. Decontamination water is expected to be minimal and will be pumped into drums for sampling. Depending on analytical results, the water will either be discharged back to the Site at a slow rate as to not cause erosion or the water will be disposed of off-Site at an EPA-approved disposal facility.

Monitoring, operations and maintenance, and long-term sampling plans have not been established for the Site and will be developed based on data generated during Site investigation activities and remediation activities, if necessary.

6.0 Project Management

6.1 Responsibilities and Functions

Safety protocol enforcement and emergency responsibilities are presented in the HASP included in **Appendix D**.

Over-all project planning, including coordination of subcontractors, maintaining the project schedule, and amending the Work Plan as new activities arise will be the responsibilities of Bill Pickard, Senior Project Manager, and Brad Adams, Project Manager. Brad Adams has also been assigned the role of Project Coordinator and Brent Graves has been assigned the role of Quality Assurance Manager.

Administration of the Work Plan in the field, including directing on-Site work and personnel will be the responsibility of Brad Adams, Project Manager, and Heidi Meyer, Staff Project Manager.

Daily communications with the OSC will be performed by Bill Pickard, Senior Project Manager, and Brad Adams, Project Manager.

Maintaining a Site entry and exit log will be the responsibility of Heidi Meyer, Staff Project Manager. Heidi Meyer has also been assigned the role of Response Manager.

Field staff will be responsible for maintaining formal documentation of Site activities, subject to oversight and review by Brad Adams, Project Manager.

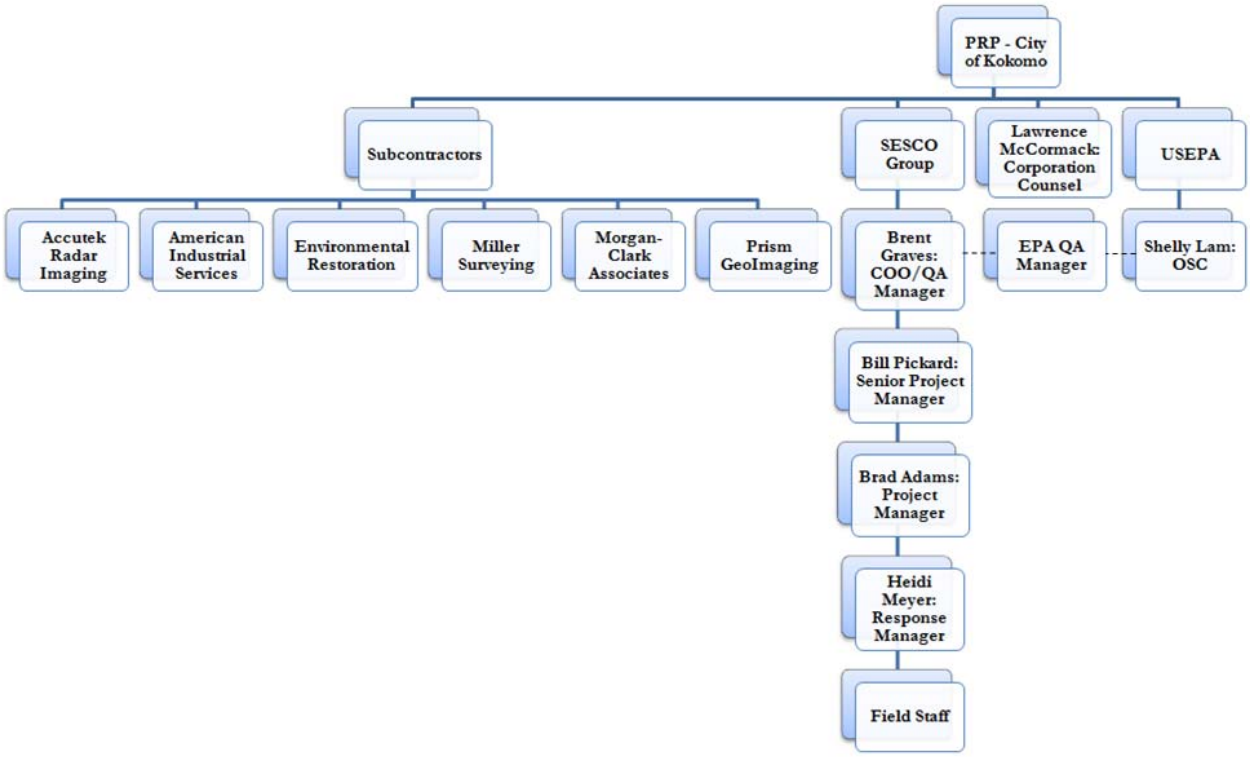
Progress reports for submission to the U.S. EPA will be prepared by Brad Adams, Project Manager, and Bill Pickard, Senior Project Manager.

Management of procurement activities, including purchase orders and subcontracts, will be the responsibility of Brent Graves, Chief Operating Officer, Bill Pickard, Senior Project Manager, Brad Adams, Project Manager, and Phil Vogelgesang, Controller.

The PRP representative for the Site is Lawrence McCormack, Corporation Counsel for the City of Kokomo. Mr. McCormack's contact information is as follows:

Lawrence McCormack
Corporation Counsel
City of Kokomo
100 S. Union Street
Kokomo, Indiana 46901
Phone: (765) 456-7440
Email: lmccormack@cityofkokomo.org

Organizational Chart



6.2 Project Schedule

A project schedule is included in **Appendix E**.

6.3 Reporting

Due to the iterative nature of investigation and remediation activities to be performed at the Site, data will be presented to the U.S. EPA at the completion of the work scope in the form

of an investigation report, including tables, figures, and laboratory analytical reports. The report(s) will present conclusions, an updated CSM, and will propose additional work, if necessary. Amendments to the Work Plan, HASP, and QAPP will be developed in concert with the U.S. EPA as part of the iterative process. Following completion of all work, SESCO will submit a final report summarizing the actions taken to comply with the Agreement (**Appendix A**). A final disposal summary will be included with the Final Report.